

What is claimed is:

1. A sound recording/reproducing method comprising:

an attribute information recording step of recording, onto a recording medium, attribute information on sound data of a music piece that are to be recorded onto said recording medium;

a rule table creation step of creating a rule table that associates the attribute information and DSP program parameters each designating, to a digital signal processor of an amplifier apparatus, a sound field process or frequency characteristic process to be performed;

a DSP program parameter acquisition step of, at a time of reproduction when sound data of a music piece to be reproduced, read out from said recording medium, are to be outputted to said amplifier apparatus, acquiring, from said recording medium, the attribute information on the sound data of the music piece to be reproduced and acquiring, from said rule table, any of the DSP program parameters that corresponds to the attribute information; and

a DSP program parameter setting step of setting the DSP program parameter, acquired from said rule table, in said digital signal processor of said amplifier apparatus.

2. A sound recording/reproducing method as claimed in claim 1 wherein, when a change has been made to the sound field process or frequency characteristic process of said amplifier apparatus during reproduction of the sound data of the music piece, there is

performed a learning step of registering, in said rule table, a DSP program parameter indicative of the changed sound field process or frequency characteristic process in association with the attribute information of the sound data being currently reproduced.

3. A sound recording/reproducing method as claimed in claim 1 wherein the attribute information on the sound data of the music piece includes music piece information identifying the music piece, album information identifying an album to which the music piece belongs, artist information identifying an artist of the music piece, and genre information identifying a musical genre of the music piece.

4. A sound recording/reproducing method as claimed in claim 1 wherein the attribute information on the sound data of the music piece includes compression scheme information indicative of a compression scheme with which the sound data are recorded on said recording medium.

5. A sound recording/reproducing method comprising:

an attribute information recording step of recording, onto a recording medium, attribute information on sound data of a music piece that are to be recorded onto said recording medium;

a rule table creation step of creating a rule table that associates the attribute information, DSP program parameters each designating, to a digital signal processor of an amplifier apparatus, a sound field process or frequency characteristic process to be

performed and processing start times each designating a time when the process is to be started;

a DSP program parameter acquisition step of, at a time of reproduction when sound data of a music piece to be reproduced, read out from said recording medium, are to be outputted to said amplifier apparatus, acquiring, from said rule table, any of the DSP program parameters that corresponds to the attribute information on the sound data and corresponds to any one of the processing start times that has coincided with an elapsed reproducing time of the sound data; and

a DSP program parameter setting step of setting the DSP program parameter, acquired from said rule table, in said digital signal processor of said amplifier apparatus.

6. A sound recording/reproducing method as claimed in claim 5 wherein, when a change has been made to the sound field process or frequency characteristic process of said amplifier apparatus during reproduction of the sound data of the music piece, there is performed a learning step of registering, in said rule table, a DSP program parameter indicative of the changed sound field process or frequency characteristic process in association with the attribute information of the sound data being currently reproduced.

7. A sound recording/reproducing method as claimed in claim 5 wherein the attribute information on the sound data of the music piece includes music piece information identifying the music piece, album information identifying an album to which the music piece

belongs, artist information identifying an artist of the music piece, and genre information identifying a musical genre of the music piece.

8. A sound recording/reproducing method as claimed in claim 5 wherein the attribute information on the sound data of the music piece includes compression scheme information indicative of a compression scheme with which the sound data are recorded on said recording medium.

9. A sound recording/reproducing apparatus comprising:

- a recording medium on which sound data can be recorded and reproduced;

- an attribute information recording section that records, onto said recording medium, attribute information on sound data of a music piece that are to be recorded onto said recording medium;

- a rule table creation section that creates a rule table that associates the attribute information and DSP program parameters each designating, to a digital signal processor of an amplifier apparatus, a sound field process or frequency characteristic process to be performed;

- a DSP program parameter acquisition section that, at a time of reproduction when sound data of a music piece to be reproduced, read out from said recording medium, are to be outputted to said amplifier apparatus, acquires, from said recording medium, the attribute information on the sound data and acquires, from said rule table, any of the DSP program parameters that corresponds to the

attribute information; and

a DSP program parameter setting section that sets the DSP program parameter, acquired from said rule table, in said digital signal processor of said amplifier apparatus.

10. A sound recording/reproducing apparatus as claimed in claim 9 which further comprises a learning section that, when a change has been made to the sound field process or frequency characteristic process of said amplifier apparatus during reproduction of the sound data of the music piece, registers, in said rule table, a DSP program parameter indicative of the changed sound field process or frequency characteristic process in association with the attribute information of the sound data being currently reproduced.

11. A sound recording/reproducing apparatus as claimed in claim 9 wherein the attribute information on the sound data of the music piece includes music piece information identifying the music piece, album information identifying an album to which the music piece belongs, artist information identifying an artist of the music piece, and genre information identifying a musical genre of the music piece.

12. A sound recording/reproducing apparatus as claimed in claim 9 wherein the attribute information on the sound data of the music piece includes compression scheme information indicative of a compression scheme with which the sound data are recorded on said recording medium.

13. A sound recording/reproducing apparatus comprising:

a recording medium on which sound data can be recorded and reproduced;

an attribute information recording section that records, onto said recording medium, attribute information on sound data of a music piece that are to be recorded onto said recording medium;

a rule table creation section that creates a rule table that associates the attribute information, DSP program parameters each designating, to a digital signal processor of an amplifier apparatus, a sound field process or frequency characteristic process to be performed and processing start times each designating a time when the process is to be started;

a DSP program parameter acquisition section that, at a time of reproduction when sound data of a music piece to be reproduced, read out from said recording medium, are to be outputted to said amplifier apparatus, acquires, from said rule table, any of the DSP program parameters that corresponds to the attribute information on the sound data and corresponds to any one of the processing start times that has coincided with an elapsed reproducing time of the sound data; and

a DSP program parameter setting section that sets the DSP program parameter, acquired from said rule table, in said digital signal processor of said amplifier apparatus.

14. A sound recording/reproducing apparatus as claimed in claim 13 which further comprises a learning section that, when a change

has been made to the sound field process or frequency characteristic process of said amplifier apparatus during reproduction of the sound data of the music piece, registers, in said rule table, a DSP program parameter indicative of the changed sound field process or frequency characteristic process in association with the attribute information of the sound data being currently reproduced.

15. A sound recording/reproducing apparatus as claimed in claim 13 wherein the attribute information on the sound data of the music piece includes music piece information identifying the music piece, album information identifying an album to which the music piece belongs, artist information identifying an artist of the music piece, and genre information identifying a musical genre of the music piece.

16. A sound recording/reproducing apparatus as claimed in claim 13 wherein the attribute information on the sound data of the music piece includes compression scheme information indicative of a compression scheme with which the sound data are recorded on said recording medium.

17. A sound recording/reproducing method comprising:

a recorded level recording step of, when a succession of sound data are to be recorded onto a recording medium, detecting a recorded level of the succession of the sound data and recording, onto said recording medium, the detected recorded level in association with the succession of the sound data; and

an output level control step of, when sound data read out from the recording medium are to be output for reproduction, acquiring a recorded level corresponding to a succession of the sound data to be reproduced and adjusting, on the basis of the acquired recorded level and a reference recorded level, an output level of the succession of the sound data to be reproduced.

18. A sound recording/reproducing method as claimed in claim 17 wherein a predetermined value is set as the reference recorded level.

19. A sound recording/reproducing method as claimed in claim 17 or 12 wherein the reference recorded level is determined on the basis of a plurality of recorded levels corresponding to a plurality of successions of sound data to be reproduced.

20. A sound recording/reproducing method comprising:

a recorded level recording step of, when a succession of sound data are to be recorded onto a recording medium, detecting a recorded level of the succession of the sound data and recording, onto said recording medium, the detected recorded level in association with the succession of the sound data; and

a volume control step of, when sound data read out from the recording medium are to be output to an amplifier apparatus having a volume control capable of being controlled from outside, acquiring a recorded level corresponding to a succession of the sound data to be reproduced and controlling the volume control of the amplifier

apparatus on the basis of the acquired recorded level and a reference recorded level.

21. A sound recording/reproducing method as claimed in claim 20 wherein a predetermined value is set as the reference recorded level.

22. A sound recording/reproducing method as claimed in claim 20 wherein the reference recorded level is determined on the basis of a plurality of recorded levels corresponding to a plurality of successions of sound data to be reproduced.

23. A sound recording/reproducing apparatus comprising:
a recording medium on which sound data can be recorded and reproduced;

a recorded level detection section that, when a succession of sound data are to be recorded onto said recording medium, detects a recorded level of the succession of the sound data;

a recorded level detection section that records the recorded level, detected by said recorded level detection section, onto said recording medium in association with the succession of the sound data; and

a recorded level acquisition section that, at a time of reproduction when sound data read out from the recording medium are to be outputted, acquires a recorded level corresponding to a succession of the sound data to be reproduced; and

an output level control section that adjusts, on the basis of the

acquired recorded level and a reference recorded level, an output level of the succession of the sound data to be reproduced.

24. A sound recording/reproducing apparatus as claimed in claim 23 wherein a predetermined value is set as the reference recorded level.

25. A sound recording/reproducing apparatus as claimed in claim 23 wherein the reference recorded level is determined on the basis of a plurality of recorded levels corresponding to a plurality of successions of sound data to be reproduced.

26. A sound recording/reproducing apparatus comprising:
a recording medium on which sound data can be recorded and reproduced;

a recorded level detection section that, when a succession of sound data are to be recorded onto said recording medium, detects a recorded level of the succession of the sound data;

a recorded level detection section that records the recorded level, detected by said recorded level detection section, onto said recording medium in association with the succession of the sound data; and

a recorded level acquisition section that, at a time of reproduction when sound data read out from said recording medium are to be output to an amplifier apparatus having a volume control capable of being controlled from outside, acquires a recorded level corresponding to a succession of the sound data to be reproduced;

and

a volume control section that controls the volume control of the amplifier apparatus on the basis of the acquired recorded level and a reference recorded level.

27. A sound recording/reproducing apparatus as claimed in claim 26 wherein a predetermined value is set as the reference recorded level.

28. A sound recording/reproducing apparatus as claimed in claim 26 wherein the reference recorded level is determined on the basis of a plurality of recorded levels corresponding to a plurality of successions of sound data to be reproduced.

29. A sound recording/reproducing apparatus comprising:

a recording medium on which sound data can be recorded and reproduced;

attribute information recording means for recording, onto said recording medium, attribute information on sound data of a music piece that are to be recorded onto said recording medium;

rule table creation means for creating a rule table that associates the attribute information and DSP program parameters each designating, to a digital signal processor of an amplifier apparatus, a sound field process or frequency characteristic process to be performed;

DSP program parameter acquisition means for, at a time of reproduction when sound data of a music piece to be reproduced,

read out from said recording medium, are to be outputted to said amplifier apparatus, acquiring, from said recording medium, the attribute information on the sound data and acquiring, from said rule table, any of the DSP program parameters that corresponds to the attribute information; and

DSP program parameter setting means for setting the DSP program parameter, acquired from said rule table, in said digital signal processor of said amplifier apparatus.

30. A sound recording/reproducing apparatus as claimed in claim 29 which further comprises learning means for, when a change has been made to the sound field process or frequency characteristic process of said amplifier apparatus during reproduction of the sound data of the music piece, registering, in said rule table, a DSP program parameter indicative of the changed sound field process or frequency characteristic process in association with the attribute information of the sound data being currently reproduced.

31. A sound recording/reproducing apparatus as claimed in claim 29 wherein the attribute information on the sound data of the music piece includes music piece information identifying the music piece, album information identifying an album to which the music piece belongs, artist information identifying an artist of the music piece, and genre information identifying a musical genre of the music piece.

32. A sound recording/reproducing apparatus as claimed in claim

29 wherein the attribute information on the sound data of the music piece includes compression scheme information indicative of a compression scheme with which the sound data are recorded on said recording medium.

33. A sound recording/reproducing apparatus comprising:

a recording medium on which sound data can be recorded and reproduced;

attribute information recording means for recording, onto said recording medium, attribute information on sound data of a music piece that are to be recorded onto said recording medium;

rule table creation means for creating a rule table that associates the attribute information, DSP program parameters each designating, to a digital signal processor of an amplifier apparatus, a sound field process or frequency characteristic process to be performed and processing start times each designating a time when the process is to be started;

DSP program parameter acquisition means for, at a time of reproduction when sound data of a music piece to be reproduced, read out from said recording medium, are to be outputted to said amplifier apparatus, acquiring, from said rule table, any of the DSP program parameters that corresponds to the attribute information on the sound data and corresponds to any one of the processing start times that has coincided with an elapsed reproducing time of the sound data; and

DSP program parameter setting means for setting the DSP program parameter, acquired from said rule table, in said digital

signal processor of said amplifier apparatus.

34. A sound recording/reproducing apparatus as claimed in claim 33 which further comprises learning means for, when a change has been made to the sound field process or frequency characteristic process of said amplifier apparatus during reproduction of the sound data of the music piece, registering, in said rule table, a DSP program parameter indicative of the changed sound field process or frequency characteristic process in association with the attribute information of the sound data being currently reproduced.

35. A sound recording/reproducing apparatus as claimed in claim 33 wherein the attribute information on the sound data of the music piece includes music piece information identifying the music piece, album information identifying an album to which the music piece belongs, artist information identifying an artist of the music piece, and genre information identifying a musical genre of the music piece.

36. A sound recording/reproducing apparatus as claimed in claim 33 wherein the attribute information on the sound data of the music piece includes compression scheme information indicative of a compression scheme with which the sound data are recorded on said recording medium.

37. A sound recording/reproducing apparatus comprising:
a recording medium on which sound data can be recorded and

reproduced;

recorded level detection means for, when a succession of sound data are to be recorded onto said recording medium, detecting a recorded level of the succession of the sound data;

recorded level detection means for recording the recorded level, detected by said recorded level detection means, onto said recording medium in association with the succession of the sound data; and

recorded level acquisition means for, at a time of reproduction when sound data read out from the recording medium are to be outputted, acquiring a recorded level corresponding to a succession of the sound data to be reproduced; and

output level control means for adjusting, on the basis of the acquired recorded level and a reference recorded level, an output level of the succession of the sound data to be reproduced.

38. A sound recording/reproducing apparatus as claimed in claim 37 wherein a predetermined value is set as the reference recorded level.

39. A sound recording/reproducing apparatus as claimed in claim 37 wherein the reference recorded level is determined on the basis of a plurality of recorded levels corresponding to a plurality of successions of sound data to be reproduced.

40. A sound recording/reproducing apparatus comprising:

a recording medium on which sound data can be recorded and reproduced;

recorded level detection means for, when a succession of sound data are to be recorded onto said recording medium, detecting a recorded level of the succession of the sound data;

recorded level detection means for recording the recorded level, detected by said recorded level detection means, onto said recording medium in association with the succession of the sound data; and

recorded level acquisition means for, at a time of reproduction when sound data read out from said recording medium are to be output to an amplifier apparatus having a volume control capable of being controlled from outside, acquiring a recorded level corresponding to a succession of the sound data to be reproduced; and

volume control means for controlling the volume control of the amplifier apparatus on the basis of the acquired recorded level and a reference recorded level.

41. A sound recording/reproducing apparatus as claimed in claim 40 wherein a predetermined value is set as the reference recorded level.

42. A sound recording/reproducing apparatus as claimed in claim 40 wherein the reference recorded level is determined on the basis of a plurality of recorded levels corresponding to a plurality of successions of sound data to be reproduced.